

Invention Application to
the Patent Department
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Patent Department
Received July 22, 1993
Deadline

BRAUN

Title or brief designation of the invention		Complaint deadline	INA deadline	File No.	Handled by	Telephone
Shaver-Cleaner		9/22/93	11/22/93	5818	H.-D. Klauer	2382

Inventor	First and last name optionally with precise title (for example, Dr.- Ing., Dipl.-Phys., Ing.-grad.)	Function in company (for example, specialist, department manager)	Department, telephone	Personal ID No.	Private address P.O. Box, town, street	Share in invention in % ^{1) 2)}
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2						
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Please explain your invention by
providing your opinion concerning
the following points in the mentioned
sequence on page 2:

- Detailed written presentation of
the invention (precise statement of the
features of the invention) with
reference to accompanying sketches,
drawings, etc.
- Advantages that can be achieved
with the invention.
- In which product (precise name)
can the invention be used?
- From which known – in-
house or outside prior art does
the invention start? Statement
of products, literature sources,
documents, drawings, etc.
- Disadvantages of the prior
art listed under 4 – Task of the
Invention.
- Issued instructions or orders
(for example precise name of
project order).

It is hereby assured that all information was provided to the best of my knowledge and that no additional inventors participated in creation of the invention.		1) If this column contains no entries, the share in the invention will be divided in equal parts among the inventors. 2) Optionally divided among the inventors according to features of the invention (for example under point 1).	
Inventor 1 7/22/93[signature]	Date	Signature	
Inventor 2	Date	Signature	
Inventor 3	Date	Signature	
Inventor 4	Date	Signature	
Inventor 5	Date	Signature	

Patent Department

Enclosure for invention application Shaver-Cleaner

Point 1

The invention concerns a cleaner for shavers that permits largely automatically running hygienic cleaning of the shaving head.

After shaving the machine can be placed completely into the cleaner without further preparation, where it is cleaned fully automatically after starting the cleaning program and dried for the next shave. The machine can remain in the cleaner, which thus functions additionally as a wall mount and charging device.

The cleaning principle is based on the finding that the shaving head of an electric shaver cleans itself without disassembly, if it is continuously immersed in an appropriate cleaning liquid. The hair dust collected in the shaving head, sometimes baked firmly onto different sites in the cutting system, is loosened by the cutting parts oscillating with high frequency in the cleaning liquid and rinsed into the liquid through the openings – especially the cutting foil.

For automatic cleaning it must be ensured that the liquid that readily loosens grease be continuously removed and is always at a sufficient height above the shaving heads.

The variant according to the invention proposes to conduct the cleaning process in a specially configured trough (1) into which the shaver (2) is immersed upside down. The trough is still empty and dry, the shaver is switched off. It can also be kept in here for storage.

Starting of the cleaning process is initiated by pressing the power supply button (3), through which the shaver is supplied with operating and charge current. It is engaged by an electronic device (4) incorporated in the cleaner that also switches on the pump (5) via a controllable timer: cleaning liquid is pumped from the integrated supply vessel (6) through a filter into the cleaning trough in which the running shaver is cleaned in the described manner. A correspondingly dimensioned overflow (7) ensures the necessary filling level after a short pump running time and small outlet holes (8) on the bottom of the trough permit discharge of the remaining liquid after cleaning is completed.

Before the shaver can be removed, it is dried by the incorporated (heating) fan (9). A safety switch prevents premature removal in order to ensure that no residual moisture can reach the interior of the shaver.

The contaminated liquid is fed from the cleaning trough into a filtering bag (10) that leads to the pump through the (cleaned) supply liquid, from which it is pumped directly back through the filter (11) to the cleaning trough. By appropriate flow path configuration, pump running time and throughput, it can be ensured that, after the end of the cleaning process, the cleaning vessel and the liquid paths, as well as the entire liquid vessel, are all in the clean state; there is no dirt region in the machine except for the filter.

This is achieved by using a filtering bag that, on the one hand, leads the loosened dirt particles to the intake side (12) of the pump without contaminating the supply liquid, but at the same time enables it to reach the pump intake side through the tube wall.

This trick permits optimal cleaning with the filter on the pump pressure side (13) and simultaneously permits an always clean liquid supply.

A positive additional effect of the system is automatic cleaning of the filtering bag inside by liquid overflow from the outside to the bag interior.

Point 2

The cleaner replaces the unpleasant, dusty hand cleaning with a time-saving, hygienic wet cleaning, which restores the shaver effortlessly to an almost new condition, as far as cutting system cleanness is concerned.

The cleaning agent is used sparingly, always cleaned again and the dirt particles are collected in the filter. The shaver dust deposited in the filter in compact form can be conveniently and hygienically disposed of over longer time intervals.

Point 3

A cleaner according to this principle is feasible in principle for any dry shaver. The described automatic function, however, requires a shaver switch that can be switched electronically, which is incorporated in the corresponding shaver type. Preferably new developments should therefore be appropriately equipped cleaner-compatible.

Automatic cleaning is particularly advantageous for the increasingly more intricate and more demanding oscillating head shavers of the latest and future shaver developments. It enables the customer to handle our best shaver systems without problem, sparing him aggravation from damaged foils or shaving heads and thus increasing the acceptance of these shavers over the long term.

The development of a shaver special model that is to be cleaned exclusively automatically is also imaginable. By eliminating disassembly for cleaning of the cutting system, interesting design improvement possibilities are obtained that thus far could not be implemented.

Point 4

A primitive forerunner is our shaking beaker for the shaving heads, which already partly implements wet cleaning.

The previous state of the art is shown in US Patent No. 3,172,416. The running shaver there is immersed in the cleaning liquid and this liquid is then circulated. To complete the process the shaver is removed, the immersion opening closed and the wet shaver placed in the cover trough to dry. With switching off of the machine a dirt settling zone in the lowermost region of the cleaner is mechanically opened so that suspended

dirt particles can settle there. This zone is closed again by operating the machine during engagement in order to prevent turbulization through the pump drive. A controlled power supply of the shaver via the shaver power cord of the cleaner is also shown.

Point 5

The main drawback of the cleaner described under point 4 is the continuous circulation of the increasingly contaminated liquid for cleaning, final rinsing is not possible, so that this system no longer reliably satisfies present-day hygienic requirements.

The awkward handling and the primitive cleaning method by settling are also unsatisfactory. The fact that the machine would not be certifiable, if the shaver has to be removed wet, is an additional system deficiency.

Point 6

The task was to develop a cleaner for shavers that carries out hygienic shaving head cleaning largely automatically without additional preparation or subsequent handling.

The background, apart from the general desire for improvement of comfort and hygiene, is the development of increasingly more complicated cutting systems that make cleaning increasingly more difficult and demanding, which might threaten the acceptance of these machines over the long term for an increasingly larger number of people.

[see source for figure]

Shaver-Cleaner



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AFFIDAVIT OF ACCURACY

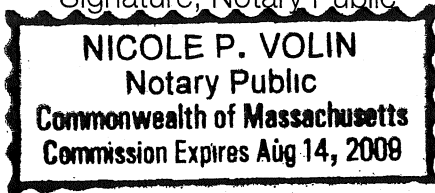
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Sworn to before me this
29th day of June 2004

Signature, Notary Public



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